AMENDMENTS TO THE CLAIMS:

Please amend Claims 1, 2, 10, and 12 as follows:

1. (Currently Amended) A projection optical system, comprising:

a first imaging optical system having at least one first lens and at least one concave mirror, for forming an intermediate image ~~of~~ on the basis of only abaxial light received from an object;

a second imaging optical system having at least one second lens and at least one diffractive optical element, for projecting an image of the object onto an image plane different from the position at which the intermediate image is formed; and

a field optical system disposed between said first and second imaging optical systems, said field optical system having at least one third lens,

wherein said second imaging optical system has no mirror ~~, and in said projection optical system, a central position of a pupil is not blocked with respect to light~~.

2. (Currently Amended) A projection optical system comprising:

a first imaging optical system having at least one first lens with a positive power and at least one concave mirror, for forming an intermediate image of an object;

a second imaging optical system having at least one second lens with a positive power and at least one diffractive optical element with a positive power, for projecting the intermediate image onto an image plane; and

a field optical system disposed between said first and second imaging optical systems,

wherein said projection optical system does not include ~~any one of~~ a lens having a negative power,

wherein said projection optical system does not include a mirror having a negative power, and

wherein said projection optical system does not include a diffractive optical element having a negative power.

3. (Previously Presented) A projection optical system according to Claim 1, wherein said at least one first lens, said at least one concave mirror, said at least one second lens, and said at least one diffractive optical element have a positive power.

4. (Canceled)

5. (Previously Presented) A projection optical system according to Claim 1, wherein said first and second imaging optical systems are disposed along a common straight optical axis, and wherein abaxial light from the object as reflected and collected by said concave mirror passes through an outside portion of an effective diameter of said concave mirror, toward the image plane side.

6-9. (Canceled)

10. (Currently Amended) A projection optical system comprising:

a first imaging optical system having at least one first lens and a single concave mirror, for forming an intermediate image of an object;

a second imaging optical system having at least one second lens and at least one diffractive optical element, for projecting an image of the object onto an image plane different from the position at which the intermediate image is formed; and

a ~~substantially~~ flat mirror disposed between said first and second imaging optical systems and at a position adjacent to the position at which the intermediate image is formed,

wherein said projection optical system ~~with a power~~ does not include a mirror having a power, ~~other than~~ except the single concave mirror of said first imaging optical system.

11. (Previously Presented) A projection optical system according to Claim 1, wherein at least one of said at least one diffractive optical element of said projection optical system satisfies a relation:

$$3 < MP/\lambda < 50$$

where MP is a minimum pitch (micron) of the diffractive optical element, and λ is the exposure wavelength (micron).

12. (Currently Amended) A projection optical system comprising:

a first imaging optical system having at least one first lens and at least one concave mirror, for forming an intermediate image of an object;

a second imaging optical having at least one second lens and at least one diffractive optical element, for projecting the intermediate image onto an image plane; and

a field optical system disposed between said first and second imaging optical systems,

wherein at least one of said at least one diffractive optical element of said projection optical system satisfies a relation:

$$|Ld/Lg2| < 0.2$$

where Ld is the distance between an aperture stop of said second imaging optical system and said diffractive optical element, and Lg2 is the distance from a paraxial image plane position of ~~an intermediate image formed by said first imaging optical system, corresponding to an object point position of said second imaging optical system, to a re-imaging plane where the intermediate image is re-imaged~~ the intermediate image to the image plane.

13. (Previously Presented) A projection optical system according to Claim 1, further comprising a field stop adjacent to an intermediate image to be formed by said first imaging optical system.

14-36. (Canceled)

37. (Previously Presented) A projection optical system, comprising:

at least two lenses;

at least one concave mirror;

at least one diffractive optical element;

a first imaging optical system having one of said at least two lenses and said at least one concave mirror, for imaging an intermediate image of an object, wherein said first imaging optical system includes at least a lens having a positive refractive power, a reflection mirror and said concave mirror, which are disposed in the order mentioned above, from the object side; and

a second imaging optical system having another one lens of said at least two lenses and said at least one diffractive optical element, for projecting the intermediate image onto an image plane,

wherein said first and second imaging optical systems are disposed along a common straight optical axis, and wherein abaxial light from the object as reflected and collected by said concave mirror passes through an outside portion of an effective diameter of said concave mirror, toward the image plane side.

38. (Previously Presented) A projection optical system according to Claim 37, wherein said at least two lenses, said at least one concave mirror and said at least one diffractive optical element have a positive refractive power, respectively, and wherein said projection optical system does not include a lens having a negative power, a mirror having a negative power, or a diffractive optical element having a negative refractive power.

39. (Previously Presented) A projection optical system according to Claim 37, wherein said at least two lenses, said at least one concave mirror and said at least one

diffractive optical element include a lens, a concave mirror and a diffractive optical element of a positive power.

40. (Previously Presented) A projection optical system according to Claim 37, further comprising a field optical system disposed between said first and second imaging optical systems.

41. (Previously Presented) A projection optical system according to Claim 37, further comprising a lens group disposed between said reflection mirror and said concave mirror.

42. (Previously Presented) A projection optical system according to Claim 41, wherein said lens group has a negative refractive power and is disposed between said concave mirror and a lens, in said first imaging optical system, having a positive power.

43. (Previously Presented) A projection optical system according to Claim 37, further comprising a reflection surface disposed adjacent to an intermediate image formed by said first imaging optical system, and wherein abaxial light from the object as reflected and collected by said concave mirror is deflected by said reflection surface toward said second imaging optical system.

44. (Previously Presented) A projection optical system according to Claim 37, wherein at least one of said at least one diffractive optical element of said projection optical system satisfies a relation:

$$3 < MP/\lambda < 50$$

where MP is a minimum pitch (micron) of the diffractive optical element, and λ is the exposure wavelength (micron).

45. (Previously Presented) A projection optical system according to Claim 37, wherein at least one of said at least one diffractive optical element of said projection optical system satisfies a relation:

$$|Ld/Lg2| < 0.2$$

where Ld is the distance between an aperture stop of said second imaging optical system and said diffractive optical element, and Lg2 is the distance from a paraxial image plane position of an intermediate image formed by said first imaging optical system, corresponding to an object point position of said second imaging optical system, to a re-imaging plane where the intermediate image is re-imaged.

46. (Previously Presented) A projection optical system according to Claim 37, further comprising a field stop adjacent to an intermediate image to be formed by said first imaging optical system.

47-53. (Canceled)

54. (Previously Presented) A device manufacturing method, comprising the steps of:

exposing a wafer to a device pattern using a projection optical system according to Claim 1; and

developing the exposed wafer.

55. (Canceled)

56. (Previously Presented) A device manufacturing method, comprising the steps of:

exposing a wafer to a device pattern using a projection optical system according to Claim 2; and

developing the exposed wafer.

57. (Previously Presented) A device manufacturing method, comprising the steps of:

exposing a wafer to a device pattern using a projection optical system according to Claim 10; and

developing the exposed wafer.

58. (Previously Presented) A device manufacturing method, comprising the steps of:

exposing a wafer to a device pattern using a projection optical system according to Claim 12; and

developing the exposed wafer.

59. (Previously Presented) A device manufacturing method, comprising the steps of:

exposing a wafer to a device pattern using a projection optical system according to Claim 37; and

developing the exposed wafer.

60. (Previously Presented) An exposure apparatus including a projection optical system as recited in Claim 1, for projecting a pattern of a mask onto a substrate.

61. (Previously Presented) An exposure apparatus including a projection optical system as recited in Claim 2, for projecting a pattern of a mask onto a substrate.

62. (Previously Presented) An exposure apparatus including a projection optical system as recited in Claim 10, for projecting a pattern of a mask onto a substrate.

63. (Previously Presented) An exposure apparatus including a projection optical system as recited in Claim 12, for projecting a pattern of a mask onto a substrate.

64. (Previously Presented) An exposure apparatus including a projection optical system as recited in Claim 37, for projecting a pattern of a mask onto a substrate.